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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hans-Martin Wiedenmann

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EXAMINER

SALZMAN, KOURTNEY R

ART UNIT

PAPER NUMBER

1795

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/510,397	<b>Applicant(s)</b> WIEDENMANN ET AL.	
	<b>Examiner</b> KOURTNEY R. SALZMAN	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>March 16, 2009</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Summary***

1. The arguments filed January 20, 2009 have been fully considered.
2. Claims 8-21 are currently pending and have been fully considered.
3. The objection to the specification has been withdrawn.

### ***Information Disclosure Statement***

4. The information disclosure statement filed March 16, 2009 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.
5. While it seems an abstract was intended to be submitted by the asterisk on the IDS form, one is not found in the file wrapper.

### ***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 8-21 are rejected under 35 U.S.C. 103(a) as being obvious over LENFERS et al (DE 198 38 466, rejections are based on US 6301951 as the English equivalent to this document) and EICHLER et al (US 3,949,551).

Regarding the preamble of claim 8, LENFERS et al teaches an oxygen sensor in an exhaust engine, as stated in the abstract. LENFERS et al teaches in the only figure a Nernst cell (12) with a measurement electrode (16) and reference

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electrode (18) contained in the reference canal (30). The pump cell (14) has an outer electrode (40) and inner electrode (38) separated from the exhaust gas by the diffusion barrier (22).

Regarding claim 8 limitations, LENFERS et al teaches the application of voltage to a pump cell in c. 3, l. 40-42 (of the English translation of LENFERS et al).

LENFERS et al states the pump voltage being cathodic or anodic to correspond to the lean or rich range of fuel-air ratio in c. 3, l. 42-45, citing cathodic current during lean operation in c. 3, l. 67 – c. 4, l. 1. This obviously causes anodic current to flow during rich operation. LENFERS et al teaches a rich drift to occur during lean conditions (c. 3, l. 67 – c. 4, l. 9) which is offset by reverse polarity pulses of the pump voltage in c. 4, l. 18-26.

LENFERS et al fails to teach the engine to be in lean operation during the warm-up phase or during the duration of a secondary fuel injection.

EICHLER et al teaches in figure 3 and in column 2, lines 13-16 for the engine and in turn the sensor to be in the lean phase during warm up.

Because LENFERS teaches that the reverse polarity pulses eliminates polarity on the electrodes during extended periods of lean operation (c. 4, l. 44-47), then it would have been obvious to one possessing ordinary skill in the art at the time

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the invention was being made to also utilize these pulses during other extended periods of lean operation, such as the during an initial warm-up lean operation like shown by EICHLER, so as to prevent the polarization of the electrodes during these other lean operations as well.

Regarding claim 9, LENFERS et al explains in c. 3, l. 59-67 that while the pump voltage is at a constant amplitude, a timer responds with a signal. The timer controls the pulse width, via the switching means, before reversal of polarity provided. (c. 4, l. 20)

Regarding claim 10, LENFERS et al teaches in column 4, lines 26-32 the time ranges and pulse applications to be dependent on the voltage. Therefore, if the pulse time is set, the voltage would need to vary, to maintain accurate readings.

Regarding claims 11-16, the manipulation of the frequencies are said to be variable in column 4, lines 32-36 of LENFERS et al. Therefore, it would be obvious to one of ordinary skill in the art to operate the pulses with a frequency which will best depolarize the electrode, decreasing the rich drift.

Regarding claims 17-19, it would be obvious to one of ordinary skill in the art for the temperature of the engine and in turn the exhaust gases and sensor to increase in temperature as the engine warms up.

Regarding claims 20 and 21, LENFERS et al teaches in claims 4 and 6 for the reversal of polarity to occur during predominate anodic currents (rich operation as defined in the above rejection of claim 8) in claim 4 and cathodic currents (lean operation as defined in the above rejection of claim 8) in claim 6. It would be obvious for operation to continue during both operation conditions.

***Response to Arguments***

8. Applicant's arguments filed January 20, 2009 have been fully considered but they are not persuasive.

9. Applicant is unclear as to the art applied for the rejection of claims 8-21, as stated in the second paragraph of page 3.

a. The rejection is based on DE 198 38 466. The English translation of this document is US patent number 6,301,951, which is available to the applicant.

Therefore the citations pertain to the passages as found in the English translation document. With respect to applicant's urging that a translation of DE 198 38 466 must be provided, it has been well established that English language equivalents of foreign documents are acceptable forms of translation and the provision of the English language disclosure LENFERS is more than suitable. Applicant's request for an additional translation of DE 198 38 466 is thereby DENIED.

10. Applicant argues on pages 4 and 5 that since LENFERS et al teaches polarity reversals during long-term lean operation and EICHLER et al teaches warm up to be short-term lean operation, the two references aren't obviously combined.

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b. Prior to operation, the car is allowed to sit in long-term lean conditions, therefore, at start up the engine has been exposed to long term lean conditions at that point, making the use of the polarity reversals clearly applicable.

c. In addition, it would always be ideal reverse the polarity in any lean condition, regardless of the length of the preceding lean period, to compensate for rich drift to prevent a skewed oxygen concentration reading, to allow accuracy in all the systems of the engine and peak performance. There is no indication that it would be beneficial to not apply the polarity reversals in any condition of lean operation because at any point the rich drift can begin to take effect and skew the concentration readings.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KOURTNEY R. SALZMAN whose telephone number is (571)270-5117. The examiner can normally be reached on Monday to Thursday 6:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/  
Primary Examiner, Art Unit 1795

kr  
5/8/2009